

CLAIMS

1. An angle-multiplex type hologram recording apparatus comprising:

5 a light source for performing an irradiation with source light including signal light and reference light;

a spatial light modulator disposed in an optical path of the signal light, for modulating the signal light;

an optical system for introducing the signal light
10 passed through the spatial light modulator and the reference light onto a hologram recording medium;

a record angle change device for relatively changing a record angle of the hologram recording medium relative to the signal light and the reference light; and

15 a control device for controlling the record angle change device to set the record angle when a specific angle record plane is recorded from among a plurality of angle record planes on the hologram recording medium as a standard record angle, and to change and fix the record
20 angle after then by a predetermined angle from the set standard record angle.

2. The angle-multiplex type hologram recording apparatus according to claim 1, wherein the spatial light
25 modulator records angle standard identification information indicating a standard angle record plane

corresponding to the standard record angle onto the specific angle record plane, if the hologram recording medium is not recorded.

5 3. The angle-multiplex type hologram recording apparatus according to claim 2, wherein the control device calibrates the record angle change device on the basis of the angle standard identification information, if record information has been recorded at least on the specific
10 angle record plane of the hologram recording medium.

4. The angle-multiplex type hologram recording apparatus according to claim 1, wherein angle standard identification information indicating standard angle record
15 plane corresponding to the standard record angle is recorded onto at least one of a plurality of angle record planes of the hologram recording medium, and

the control device calibrates the record angle change device on the basis of the angle standard identification
20 information.

5. The angle-multiplex type hologram recording apparatus according to claim 1, further comprising a move device for moving the hologram recording medium relative
25 to a focus position of the reference light and the signal light introduced by the optical system.

6. The angle-multiplex type hologram recording apparatus according to claim 5, wherein the spatial light modulator performs recording to all angle record planes of the hologram recording medium every time of moving by the move device.

7. The angle-multiplex type hologram recording apparatus according to claim 1, wherein the specific angle record plane is an angle record plane to be firstly recorded from among the plurality of angle record planes.

8. An angle-multiplex type hologram reproduction apparatus for reproducing recorded information from an angle-multiplex type hologram recording medium in which angle standard identification information indicating a standard angle record plane is recorded onto one of a plurality of angle record planes, said reproduction apparatus comprising:

20 a light source for irradiating the hologram recording medium with reproduction illumination light;

a photoreceptor for receiving reproduction light based on the reproduction illumination light from the hologram recording medium;

25 a read device for reading respectively the plurality of recorded information overlappingly recorded onto the

hologram recording medium, on the basis of the received reproduction light;

a reproduction angle change device for changing a reproduction angle of the hologram recording medium
5 relative to the reproduction illumination light; and

a control device for controlling the reproduction angle change device so as to change and fix the reproduction angle by a predetermined angle on the basis of standard reproduction angle corresponding to the
10 standard angle record plane, wherein

the control device calibrates the reproduction angle change device on the basis of the angle standard identification information.

15 9. The angle-multiplex type hologram reproduction apparatus according to claim 8, further comprising: a move device for moving the hologram recording medium relative to a focus position of the reproduction illumination light.

20 10. The angle-multiplex type hologram reproduction apparatus according to claim 9, wherein the read device performs reproduction to all angle record planes of the hologram recording medium, every time of moving by the move device.

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11. An angle-multiplex type hologram recording method

in an angle-multiplex type hologram recording apparatus comprising: a light source for performing an irradiation with source light including signal light and reference light; a spatial light modulator disposed in an optical path of the signal light, for modulating the signal light; an optical system for introducing the signal light passed through the spatial light modulator and the reference light onto the hologram recording medium; and a record angle change device for relatively changing a record angle of the hologram recording medium relative to the signal light and the reference light, said method comprising:

a set process of setting the record angle when a specific angle record plane from among a plurality of angle record planes of the hologram recording medium is recorded, as a standard record angle; and

a control process of controlling the record angle change device so as to change and fix the record angle after then by a predetermined angle from the set standard record angle.

12. The angle-multiplex type hologram recording method according to claim 11, wherein the specific angle record plane is an angle record plane to be firstly recorded from among the plurality of angle record planes.

13. An angle-multiplex type hologram reproduction

method in an angle-multiplex type hologram reproduction apparatus for reproducing the recorded information from the angle-multiplex type hologram recording medium in which angle standard identification information indicating
5 a standard angle record plane is recorded onto one of a plurality of angle record planes, said reproduction apparatus comprising: a light source for irradiating the hologram recording medium with reproduction illumination light; a photoreceptor for receiving reproduction light
10 based on the reproduction illumination light from the hologram recording medium; a read device for reading respectively the plurality of recorded information overlappingly recorded onto the hologram recording medium, on the basis of the received reproduction light;
15 and a reproduction angle change device for changing a reproduction angle of the hologram recording medium relative to the reproduction illumination light, said method comprising:

a calibration process of calibrating the reproduction
20 angle change device on the basis of the angle standard identification information; and

a control process of controlling the reproduction angle change device so as to change and fix the reproduction angle by a predetermined angle on the basis
25 of standard reproduction angle corresponding to the standard angle record plane.